easyGRIND

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VERSION 6.16

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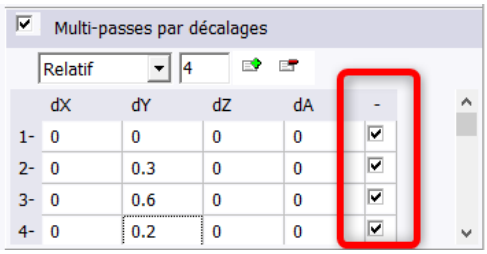
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New features

Ability to select or not certain multi-passes



Profile grinding New method G = left contact

Broaches: 2D representation to scale (broach blank along its length, with the teeth drawn). The main positioning dimensions are drawn (Face1, Shim1, Tooth1 pos./stop, etc...)

Broach: Interactive navigation in the pitch and progression table: The chart below the pitch/progression table is a to-scale representation of these 2 values for all teeth. Clicking on a tooth in the chart positions the cursor on that tooth's row in the table.

Broaches & 2D background

Broaches and tooling for eSim: if the machine in eSim has configurable tooling, it is now possible to customize how this tooling is displayed based on the current tool.

Manual measurement of machine drift

Screens and use

Multi-pass:

-Improved: added a Yes/No choice for each multi-pass

2D simulation (rotating tools):

The entry field for the cutting-plane position has been debugged (a TEdit replaces a TSpinEdit). Press [ENTER] to confirm the value change

-Improved: Added the "Simulate to large diameter" option. This option applies to stepped or tapered tools.

When simulating in a cutting plane where the diameter is smaller than the tool's large diameter, the simulated shape "extends" out to the large diameter. This is particularly useful for retrieving the flute shape for profile machining.

-Fixed: calculation times were extremely long

Machining

Drills

"Kennametal TIP" job:

added partial machining to this job

Use:

added a bypass for certain information messages

"End relief" job:

since 6.10, the end relief calculation was corrected to be based on the tip diameter rather than the drill's large diameter. Some customers want to keep the old calculation method

Numaffut.ini, [CONFIG_OUTILS], Depouille_Bout_Ancienne_Version= 1 (0 by default)

Special O and S Tool:

ability to add a type A or type B thinning in addition to the End Flute (S). The choice is made when describing the drill.

Other rotating tools

Profile grinding:

New method G = left contact

Form tools:

An option can be enabled that automatically adds fillets to profiles. This option has been made more robust (particularly with side relief).

option in numaffut.ini [Formes] Ajouter_Conges = 1 K_ENTREE_Formes_Ajouter_Conges.

Mill, curvilinear relief:

-New: added the "RotA 180°" option on the job page.

Broaches

2D representation

To-scale representation of the broach blank along its length, with the teeth drawn. The main positioning dimensions are drawn (Face1, Shim1, Tooth1 pos./stop, etc...)

To enable this option, configure it in numaffut.ini, section [BROCHES]
2D_Tilting_Display=1 (leave at 0 if you do not want to draw the cradle)
2D_Tilting_PosT=27
2D_Tilting_Width=110
2D_Tilting_Heigth=130
2D_Tilting_PosX=130
2D_Tilting_Length=500

For a flat broach, the plate or cradle can also be shown schematically if it exists.

Round broach, EXT Wheel Relief job: the wheel and its travel are drawn in the job's 2D view.

Flat broach, "Profile GRINDING" job: the multi-pass is shown in the job's 2D view

Representation of pitches and progressions

The chart below the pitch/progression table is a to-scale representation of these 2 values for all teeth. Clicking on a tooth in the chart positions the cursor on that tooth's row in the table.

Reminder: this only existed partially for round broaches. For flat broaches, it represents the "Gj deviation" column

Broaches & 2D background

- If the operator selects a background, it is added to the automatically calculated blank (previously, the background replaced the automatic blank). It is displayed in a different color.

Tooling for eSim

-New: if the machine in eSim has configurable tooling, it is now possible to customize how this tooling is displayed based on the current tool.

The following option must be enabled in numaffut.ini:
[SIMULATION_3D] Personnaliser_Outillages = 1
Reminder: the broach tooling option must also have been enabled:
[BROCHES] Utiliser des outillages = 1
[BROCHES] Format_Fichier_Outillage = ini / = xml

Broaches & [SYMBOLIC ISO]

- Round broach, "RIGHT-HAND GRINDING" job: this job is now available

- Round broach, "CHIP BREAKER" job: this job is now available when not machining "in line"

- Flat broach, "Tooth Back" job: Removed the Z out-of-travel error (Z-46000).

- Flat broach, "CHIP BREAKER" job: this job is now available

- Flat broach, "PROFILE GRINDING" job with several offsets: This feature is now accessible

- Concave broach, "CHIP BREAKER" job: This feature is now accessible

- Broach and Triple passes: a depth-of-cut value can now be entered for the spark-out pass. (*In Numaffut.ini, [BROCHES] Triple_Passe_3_Saisir = 1)*

- Flat broach, "EXT Ext Rel." job: the job parameter "Extra depth of cut" was displayed in the job even though the "Triple pass" option was not selected.

Triple flat broach

A few fixes were made so that this module works correctly
- RIGHT Tooth Cut, LEFT Tooth Cut: was applying the "Z Mod." column reserved for the outer teeth
- in simulation, machining was poorly positioned in X

Progression on fir-tree root broach:

-New: Ability to declare lateral progression (in addition to the outer progression)

"Contouring" job

-Fixed: the profile was poorly positioned on fir-tree root broaches

Reminder: The profile is drawn when the broach is "flat" on its base. When machining, the broach is rotated by the tooth-root slope. The profile's reference point must be located on the cutting edge.

For the profile's 2D representation:

> the "flat" profile is drawn

> the "rotated" profile (in its machining position) is shown for entering variations in relief and wheel incline.

-New: activation of tables for varying the side relief and the wheel incline

-New: "Lock A axis" parameter. This cheats the wheel incline so that the A axis does not move during machining. The wheel incline is therefore forced to a fixed (or even zero) value

"PROFILE GRINDING" job

Added "Lift" to the job parameters

"CUT" job

-Fixed: the customized end-of-approach travel now applies to the last approach block

NOTE: the end-of-approach speed only applies to the last block

"PROFILE GRINDING" and "EXT Tooth Rel." job

-Improved: All parameters that position the form wheel have been copied into the job (including the Number of offsets and the Offset pitch)

-Improved: The sign of the "offset" parameter has been reversed to match the axis directions (the program will warn if a tool using this offset was programmed before this version).

-Improved: The 2D view (in the job) shows the dimensions of the 1st tooth. Added the height of the last tooth as a dashed line. Offsets are also drawn (if requested).

Machine use

*VG Transfer system300 & VG400

-Improved: ability to customize the B position during loading: Unloading. Change the "B Position" value in the pallet configuration

updated varCN.ini to include _varCN_Robot_PosiB

-Fixed: E30007, used to specify the end of loading/unloading, was not being correctly written at the end of %2001 and %2002

Machine drift measurement (eHomePosition)

Manual measurement of machine drift. Allows the machine's behavior to be monitored over time.

CNC Link

- ability to specify the time before a timeout during program transfer

machine1.ini, [LiaisonCN], Flexium_TimeOut_FileDownload = 30 by default

- on some machines, a short wait is needed after transferring a program to the CNC to let it settle.

machine.ini, [LiaisonCN], Flexium_Pause_FileDownload = time in ms

eSim

Oil hole simulation

A number of oil holes different from the number of teeth can be specified

Customize colors

a simulation color can now be configured for a given job.

For example, if blue is chosen for the flute job, the simulated flute will always appear blue, regardless of its position in the job list.

Fixes

Screens and use

Check machine travel limits at edit time: if the B axis travel limits do not allow the requested machining, the axis value displayed in the message could be incorrect.

Wheel screen: Bug when opening a wheel with truing. I don't understand why, it worked with version 6.15.

Profile entry screen: removal of confusing "DEVELOPER WARNING" messages that appear in certain cases. (kept for the developer key only)

eSim with dressing: if dressing is edited at the start of the program, the 3D simulation no longer worked

Machining

Blades: behavior changed between 6.10 and 6.11. Restored to as before v.6.10

Reamer: when there is a single rake face and an entry is added, the number of teeth associated with the new entry is initialized to 1 regardless of the value specified in entry 1. Now the number of teeth for all entries is forced to match entry 1

Form mills - profile relief: in some editing cases with many points and the "stay under 32768 block no." option checked, machining errors could occur.

Barrel tapered mill: an access violation occurred when reading probing data with retrieval

PLUNGES on form tool: customization of the plunge tables was no longer being saved (since 6.12 inclusive)

Machining with steady rest : since v.6.13 inclusive, ISO block numbers were shifted when using the Steady rest

Broaches

Fir-tree root broach: Lift deformation: the calculation was incorrect since at least 2016: The lift is a Y offset that is distributed along the profile using a rule of three. This rule of three must be applied based on the Y coordinates. For some reason, it was coded based on X.

Round broaches & eSim: The blank was poorly positioned if the "X Origin" parameter was equal to zero.

Round broaches & eSim: an extra stock allowance on the blank changed its position in the machine